

Radiology's FOCUS on POCUS – A Quality Improvement Mission

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Point-Of-Care-Ultrasound (POCUS)

- Brings US technology to the patient's bedside
- Seen as “an extension of the clinical exam” in some situations
- In appropriate hands, may positively influence the care of patients
- Fraught with disparities in provider competence within our medical center



POCUS Disparity

POCUS has become commonplace

POCUS machines are readily available

Providers have a desire or expectation to perform POCUS

Providers are not necessarily confident in their ability to perform POCUS

POCUS courses are expensive, brief and do not provide ongoing support or feedback

Lack of ample personnel to provide structured POCUS education and training

**Suboptimal and
insufficient
POCUS training**

Purpose

- Develop a scalable solution for the disparity in POCUS skills across our medical center.



Methods

- Interdepartmental collaborative effort to steer POCUS training
- Specific group of learners targeted i.e. Seven nephrology fellows
- Three key professionals – **Radiologist, Nephrologist and Sonographer** collaborated to create a curriculum for the fellows to be competent in performing and interpreting renal sonograms
- Four US workshops consisting of didactic lectures and hands-on scanning were delivered
- Pre- and post- tests were administered to document knowledge and learning

#	Steps	Status
1	7 Nephrology Fellows enrolled in educational pathway	Completed
2	4 ultrasound workshops consisting of hands-on scanning and didactic lectures delivered	Completed
3	Pre- and post-tests administered to document knowledge and learning	Completed
4	After completing workshops, Nephrology Fellows encouraged to undertake POCUS scanning and capture images for review by Radiologist	Ongoing
5	Nephrology Fellows to observe Radiologist within Abdominal Radiology reading room	Ongoing

Ultrasound Workshops

1. Basic physics, ultrasound safety and tissue characteristics

2. Renal sonographic anatomy and techniques; Normal variants

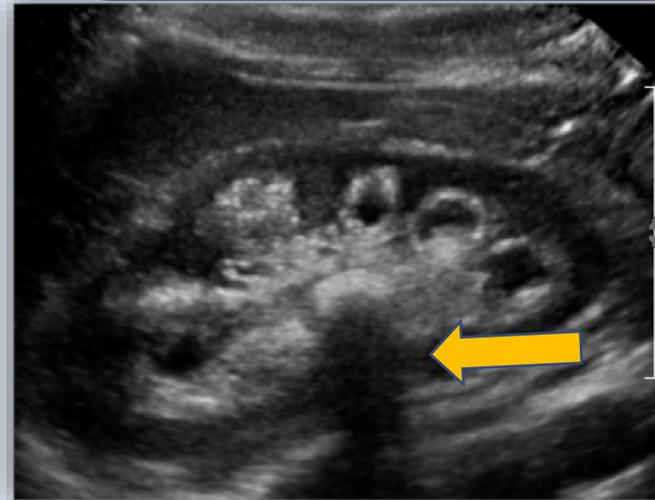
3. Commonly encountered renal pathologies

4. IVC sonography and fluid status

Sample test question:

Which statement is correct regarding ultrasound gel?

- a. It has been linked to several outbreaks of bacterial infection ★
- b. Once warmed, is less likely to cause infection
- c. Does not promote survival of bacteria since all ultrasound gel must contain bactericidal compounds



Sample image from lecture:

Sagittal image of the left kidney showing “shadowing” calculus within renal pelvis.

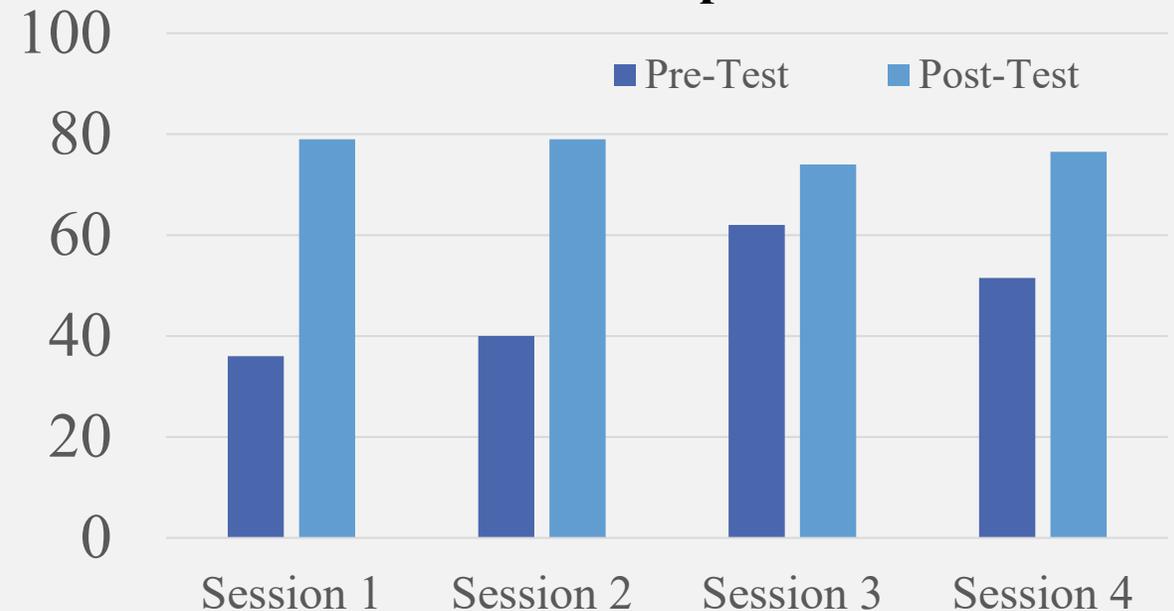
Results

Excellent interdepartmental engagement and collaboration

Post- test scores improved from an average of 51.1% to 76.5% ($p < 0.001$)

Session	Average Scores Pre-Workshop	Average Scores Post-Workshop
1	36%	79%
2	40%	79%
3	62%	74%
4	68%	74%
Total Average Scores	51.5%	76.5%

Average test scores of 7 Nephrology Fellows before and after workshop instruction



Results

- Nephrology fellows obtained renal sonograms using POCUS equipment and presented their images for appraisal by the Radiologist
- Opportunity for one-on-one feedback
- Results in appreciation of safe boundaries of practice within a POCUS framework



Conclusion

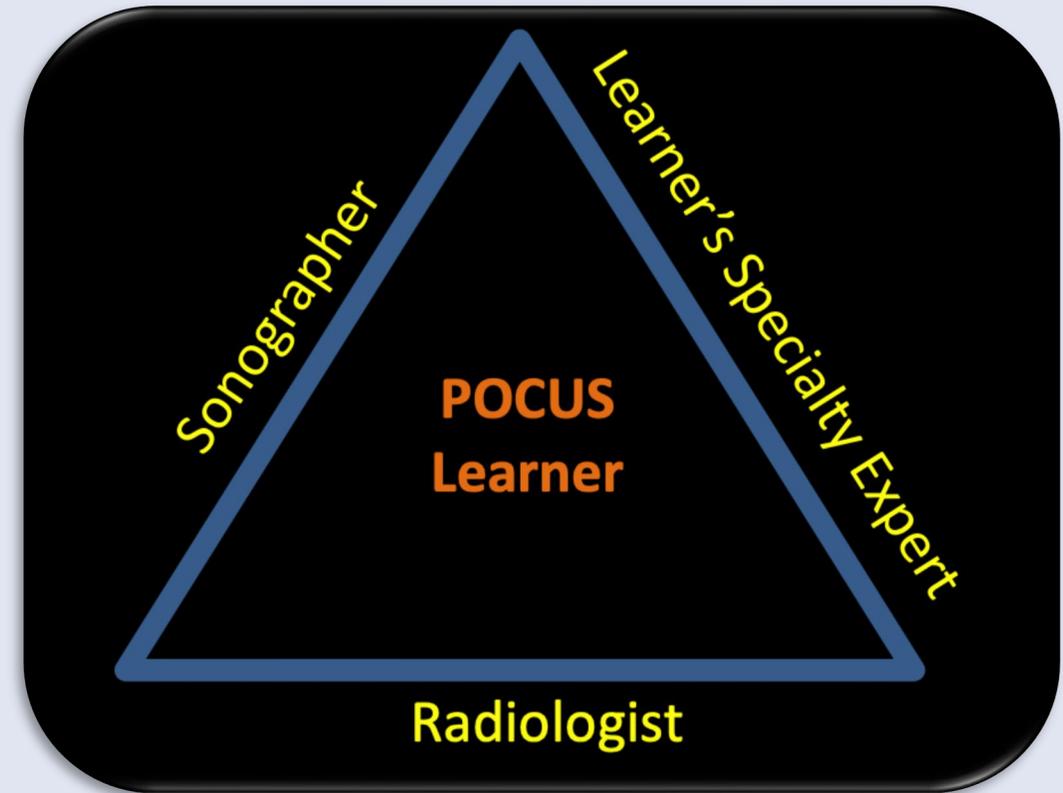
Radiology can play a role in the implementation and practice of POCUS. Key components for scalable success include:

1. Identifying a target group of learners

2. Developing a curriculum for learners based on collaboration with the experts within the learner's specialty

3. Engaging Radiologists and Sonographers to provide didactic teaching and hand-on workshops, respectively

4. Providing ongoing evaluation and feedback



Thank you!

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